DOCUMENT RESUME

ED 410 977 IR 056 475

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TITLE Building a Library Intranet.
PUB DATE 1997-05-00
NOTE 19p.; Paper presented at the Annual Meeting of the Nebraska Library Association (Crete, NE, May 23, 1997).
PUB TYPE Reports - Descriptive (141) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Academic Libraries; *Computer Networks; Higher Education; Information Technology; *Internet; *Library Automation; Library Funding; Library Personnel; Library Services; Microcomputers; Staff Development; Technological Advancement
IDENTIFIERS HTML; Intranet; *Technology Integration; University of Nebraska Omaha

ABSTRACT

"Intranets"--web sites written and used internally by organizations--are being developed as a means of enhancing communication, improving productivity, and reducing costs. The University Library at the University of Nebraska at Omaha is in the early stages of developing an Intranet. Considerations that led the library to establish an Intranet and the development process are outlined. Issues that should be considered before beginning such a project and how the site will be maintained are also discussed. Staff development and training in the use of the Intranet and hypertext markup language (HTML) are highlighted. A library Intranet can be a cost effective method of improving the way libraries do business if its purpose is thoughtfully defined and the site is carefully designed, developed, and maintained. Although the tools are available in most libraries, the staff time involved in development and maintenance must be considered when a library contemplates the establishment of an Intranet. A statement of Intranet purpose and guidelines prepared by the development team is provided. (Author/SWC)

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BUILDING A LIBRARY INTRANET

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ABSTRACT

"Intranets" – web sites written and used internally by organizations – are being developed as a means of enhancing communication, improving productivity, and reducing costs. The University Library, University of Nebraska at Omaha, is in the early stages of developing an Intranet. Considerations that led the library to establish an Intranet and the process of development process are outlined. Issues that should be considered before beginning such a project and how the site will be maintained are discussed. Staff development and training in the use of the Intranet and hyper text markup language (HTML) are highlighted.

INTRODUCTION

> "Think of an Intranet as an organization's virtual library and you begin to sense its power – and the need for librarians to be involved in it."
> *Computers in Libraries,* June 1, 1996

Intranets are internal networks that use Internet and Web technologies to enhance an organization's ability to find, manage, create and distribute information.[1] The beauty of creating an Intranet is that most of the necessary tools are already available if the organization is involved in the Internet. All that is needed is a Web browser on the client end, a server capable of running TCP/IP, and a little knowledge of HTML. Many of the skills that librarians have acquired in learning to navigate the Web or creating an Internet site may be used to design and develop an Intranet.

[1] Personnel Journal, July 1996, p. 28.

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An Intranet is one of the most effective uses that an organization can make of Internet technologies. A recent American Management Association study found that 36% of all companies have an Intranet for inter-organizational communications and that number is expected to grow to 68% within two years. Another study found that Intranets had an average return on investment of 1000% in savings and productivity.[2] Intranets may be designed to serve a number of functions in libraries including:

1. Improving Communication

Intranets are a great place to locate basic information needed by staff. Library policies, cataloging tools, upcoming events, strategic plans and other pieces of information the library staff need to be able to locate quickly and easily may be included and efficiently revised to maintain currency.

2. Organizing Information

Librarians are experts at organizing information and the Intranet provides a new tool to structure internal documentation. The possibilities in this area are limited only to the imagination of the librarian.

3. Training

The same training materials may be viewed by any employee at any time. This is more convenient and provides more consistency in the material presented. Interactive components such as discussion groups or comprehensive tests may be integrated. The interface is user-friendly and may be accessed at any

[2] *Intranet World*, 5/20/97, p. 1

time from any location that has Intranet connectivity. Mounting training materials is less expensive than printed copies and the information can be easily updated.[3]

4. Facilitating Teamwork

The creation and maintenance of an Intranet involves staff from all parts of the organization and they must work together if the Intranet is going to succeed. Libraries are increasingly utilizing functional or interdepartmental teams to accomplish specific tasks or processes. An Intranet can provide a "home" for teams, task forces, and other work groups that do not fit into the traditional organizational structure. Intranet pages can help teams establish an identity, structure documentation, and facilitate communication within the team and between the team and the rest of the organization.

DEVELOPING AN INTRANET

The development process for an Intranet should begin well before the first documents are mounted on the server. The process, whether formal or informal, should include *evaluating the Intranet idea, articulating the Intranet's purpose, structuring the Intranet,* and *synthesizing the Intranet.*

Evaluating the Intranet idea

In the initial stage of building an Intranet, one essential question needs to be answered: "Does the library really need an Intranet?" The answer not only determines whether to proceed with development but it may also affect the

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[3] *Personnel Journal,* July 1996, p. 28

ultimate shape and purpose of the Intranet site. This question is answered by assessing the information needs and communication protocols within the organization.

The following assessment is adapted from materials for corporate clients developed by the Nebraska Business Development Center.[4]

Assessing the Need for an Intranet in Your Library

1. Do you have one or more current problems in your library's operations that could be lessened or resolved by a better flow of information?
YES NO Don't Know

2. Does staff ever have trouble finding current and reliable information about the organization, patrons or vendors?
YES NO Don't Know

3. Do employees need to access common information?
YES NO Don't Know

4. Do employees need to regularly refer to procedure and policy handbooks or statements?
YES NO Don't Know

5. Do employees need to access the same databases from different departments or organizational units?
YES NO Don't Know

6. Do employees collaborate on projects or work in teams?
YES NO Don't Know

7. Does the organization spend a significant amount of time creating, updating and disseminating manuals, policies and reports?
YES NO Don't Know

0 Yes	There is no significant need for an Intranet in your organization
1-2 Yes	More research is needed. An Intranet might address specific needs.
3-4 Yes	An Intranet could be of benefit to your organization
4+ Yes	An Intranet could be of significant benefit to your organization

[4] Nebraska Business Development Center, *Developing an Intranet,* 1996, 10.

Other factors to be considered in evaluating the potential utility of an Intranet for your Library are *cost related:*

- *support* – can the Intranet be created on an existing server?
- *accessibility* – do employees whose work would be enhanced by an Intranet have the ability to see and update the Intranet?
- *feasibility* – do you have individuals in your organization with the technical skills needed to develop an Intranet?

Even if your organizational assessment shows that an Intranet could be of benefit to your library, you may discover that the costs of establishing an Intranet are simply too high to justify the effort. Many corporate Intranets were established without regard to cost and companies have been slow to accurately assess their return on investment. Generally, however, most corporate Intranets are indicating a positive return on investment.[5]

Articulating the Intranet's Purpose

Assuming that the initial evaluation of the Intranet idea is positive, the next step is to begin articulating the purposes the Intranet will serve in the

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[5] Paul, Lauren Gibbons, "It's Payback Time, Folks," *PC Week Online*, http://www8.zdnet.com/pcweek/builder/0428/28roi.html

organization. A useful format to use in structuring this process is to develop a series of questions and answers. For example:

- What is the overall purpose of the Intranet?
- What is the most important function of the Intranet?
- What specific problems can we address through an Intranet?
- How will the Intranet be used to reduce costs?
- How will we use the Intranet to enhance patron service?
- What departments or units in the Library need to be represented on the Intranet?
- What types of information are appropriate for the Intranet?
- Who will determine and monitor the content of the Intranet?
- What department needs an Intranet the most?
- What can we stop doing once we start using an Intranet?
- How much will it cost?
- What kind of training and skills will be needed to make the Intranet work?
- How will the success of the Intranet be measured?

Questions of this type – particularly if written out – will be of considerable benefit to everyone involved in the process. They will help eliminate unreasonable expectations, establish operating parameters, and establish priorities for content, training, and control.

Structuring the Intranet

Once the purposes and scope of the proposed Intranet have been articulated, development of the structure that will create, drive, and maintain it should begin. This involves the human infrastructure that creates, builds, and maintains the Intranet rather than the site architecture.

"Classic" models for commercial web-site development include the "webmaster" – a single individual who has the technical skills to create and

maintain a site – and the "web team" in which the webmaster's technical expertise is replaced by a small cadre of experts in graphics, marketing, sales, and other areas. Libraries, where web sites are often the creation of a single individual, have tended to follow these commercial models. Unlike an Internet site where the concern is to present an identifiable image and to provide access to certain defined services, the Intranet focuses on the dissemination and sharing of information, much of which may be transitory or contingent.

An evolving model for website development better suited to Intranet architecture is the "publishing metaphor,"[6] which envisions "publishers," "authors," and "editors" collaborating to create and maintain the content of Intranet sites. In one version, "authors" are primarily concerned with generating and collecting content from within their department or team for the Intranet. The content created by authors is then refined by "editors" within the department or team who monitor the appropriateness of the content, determine whether the content supersedes existing content, and where and how the content should be located on the Intranet site. The "publisher" ensures that the content produced accords with any appearance and format requirements established for the Intranet, reviews and maintains links and generally makes the information available on the Intranet in a structured and usable form.

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[6] Roberts, Bill. "The Art of Groupware." *Webweek*. http://www.webweek.com/96Dec16/intranet/groupware.html

Structural considerations are concerned with the actual operation of the site rather than its purposes. The sorts of questions answered in this process are:

- Who will assemble information for the Intranet?
- Who will approve or review the content of information on the Intranet?
- Who will be responsible for the overall appearance, structure and navigation features of the Intranet?
- Who will install and maintain the Intranet?
- Who will be the top and final Intranet authority?

The structure chosen to create and maintain the Intranet will vary from organization to organization and will reflect the existing skills within the organization. It will also be shaped by the organization's structure and modes of communicating within that structure. Avoid relying on high turnover personnel (such as student workers) to fill key roles in your Intranet structure. Identify a "champion" in management to support and advocate the Intranet to other managers.

Synthesizing the Intranet

The final step to be taken before initiating an Intranet is to evolve a policy statement for your Intranet. The policy statement should clearly articulate the reasons for creating an Intranet (the goals of the Intranet) and define the infrastructure of the Intranet (the people who will create and manage the Intranet, their responsibilities, and their authority). This policy will guide the creation and development of the Intranet in its earliest stages.

Case Study: UNO Library's Experience

The mandate for an Intranet at the UNO Library developed as part of the Library's strategic planning process. The 1996-2000 Strategic Plan assigned the objective "Intranet will be developed for WWW server with input from all departments" as part of the strategic goal to "Provide a state-of-the-art information technology infrastructure." Responsibility for achieving this objective was assigned to the WebServer Development Team, a group comprising of one representative from each Library department and a representative from the Library Systems office.

Evaluation of the Intranet idea took the form of a survey among Library staff and departments regarding "Internet site content." Departments submitted a list of information, services, or functions that they were interested in seeing on a website. The responses were divided into three categories – items that would be on an Internet site, those which belonged on a campus Intranet (faculty liaison information, for example) and those which belonged on a library Intranet (such as staff handbooks, cataloging tools, etc.) The list of library Intranet items was sufficiently long and contained items of enough significance that the decision was made to proceed with construction of an Intranet.

The Intranet's purpose was articulated in a series of conversations within the webserver team and embodied in an initial policy statement. No final decisions as to the structure or administration of the Intranet were made during this stage. Instead, the webserver team offered a basic structure and took all

administrative responsibilities for a period of approximately six months at which time decisions regarding the permanent administration of the Intranet site would be made. As of this writing, those decisions are pending, but the Library is unlikely to continue pursuing a team approach to the Intranet and will likely move to some variation on the publishing metaphor.

ESTABLISHING AN INTRANET

The implementation process for an Intranet begins -- as do most complex website designs -- with a *site map or design layout* which is partially actualized in a *prototype site*. Building and implementation continues through *training*, *elaboration*, and *review*.

Design: Mapping the Intranet and Building a Prototype

A key element in successful design is a physical sketch or map of the Intranet site. The design will reflect some of the decisions that have already been embodied in the policy statement and assessments. A map does not have to be elaborate or highly detailed. It is used to clearly define relationships between Intranet elements and delineate site navigation.

Construction of a prototype may not be necessary in all situations or the prototype may actually constitute the early stages of site construction. Prototypes

are useful for testing navigation, demonstrating the Intranet concept to management and staff, and testing out interactive site elements such as discussion groups, database manipulations, and search engines. If a prototype or developing site is being used to "sell" the Intranet idea to management and staff, it is very useful to include at least one feature or resource that will be of immediately obvious utility or interest to users -- perhaps a staff handbook, cataloging tools, minutes of department meetings, etc.

Building: Training, Elaboration and Review

Unlike surfers hitting an Internet site, users of Intranet sites may require training. Many of the Intranet's users will also be authors. Intranets may replace or supplement established methods of doing work and modes of communication within organizations. Resistance to such changes is not unusual, particularly since what an Intranet " brings to the organization is not necessarily what it brings to the individual."[7]

Training may need to cover browser use, HTML, the use of conversion utilities and editors, new data entry or querying functions, and the proper use of e-mail or chat programs. The precise training mix will be determined by the existing skill levels of staff and the uses of the Intranet within the organization.

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[7] Carr, David and Murphy, Kathleen. "Convincing Staff to be Users," *Intranet World, Webweek*, http://www.webweek.com/97Mar17/advisor.html.

Like all web sites, Intranets will grow, evolve, and change through time. Ideally, your Intranet site manager or team will gradually assume a role as change facilitator or change manager in your organization. Intranets are peculiarly well suited to ensure rapid dissemination of accurate information within an organization. They can also be used to generate and focus discussion and dialogue. A healthy Intranet should rapidly change and evolve. Policy statements, standard practices, and even the composition of your site management team should be frequently reviewed and revised.

Case Study: UNO Library's Experience

The Library chose to structure the Intranet on a departmental model with each department maintaining a separate home page. Content of the departmental areas is determined by the department chair. Links to Internet resources and content pages that cross departmental boundaries (committees, task forces, staff handbooks, etc.) are tied to the main page under the general oversight of the Library Administrative Office.

The departmental structure of the Intranet has produced somewhat uneven development. Certain units or departments have added considerable content to the Intranet, while others have done very little. The interdepartmental areas of the Intranet have the most significant content. Of particular importance have been the policy handbook for Library staff, task force reports and discussion areas, and information about database trials that were conducted in early 1997. The staff

handbook no longer exists in paper form and monthly statistics are no longer disseminated in paper form.

The slow development of the Library's Intranet is attributable, at least in part, to a low initial skill level. Many staff members had never used a web browser and HTML was little understood. Training became a principle task for the webserver team. An initial class in "how to use a browser" was conducted. The Systems office ensured that a current browser release was available on all personal computers used for training. A five week class in "Basic HTML" was offered. Following the class, Intranet content doubled. The basic HTML class will be taught a second time and an advanced HTML class will be offered. Staff are becoming increasingly aware of conversion programs and editors that are available.

MAINTAINING AN INTRANET

Probably the most common maintenance problem with an Internet site is maintaining the currency of links. An Intranet's main maintenance problem, however, concerns gathering, updating and organizing content.

Information on the Intranet must, above all, be usable information. The problem is not the technology but the information. The core maintenance problem is twofold: (1) organizational cultures and individual practices that resist information sharing, making collection of information difficult and (2) the

problem of initiating, maintaining, and purging the information. It is easy to quickly shove a great amount of information onto an Intranet but this information must be tracked, improved, and purged of old data for it to remain useful. [8] On a successful Intranet, the number of contributors and documents continues to grow, "eventually causing real problems for users who are searching for particular documents or . . . looking for the most recent version of a document."[9] The time required to maintain any web site, but particularly an Intranet site, may be underestimated by managers and supervisors. Librarians, more than most Intranet administrators, should be better equipped to manage both the amount and organization of information on the Intranet site.

CONCLUSION

A library Intranet can be a cost effective method of improving the way libraries do business if its purpose is thoughtfully defined and the site is carefully designed, developed, and maintained. Although the tools are available in most libraries, the staff time involved in development and maintenance must be considered when a library contemplates the establishment of an Intranet.

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[8] Roberts, Bill. "The Art of Groupware," *Intranet World, Webweek*, http://www.webweek.com/96Dec16/intranet/groupware.html

[9] Booker, Ellis, "Managing Documents," *Intranet World, Webweek*, http://www.webweek.com/current/intranet/advisor.html

The issues involved in Intranets are summed up nicely in an article in *Computers in Libraries:*

> The beauty of the Intranet is the ease with which it is created and used. The power of the Intranet is in the way it enables organizations to easily and inexpensively share information. The problem of the Intranet is organization – who will provide it and how will this new generation of tools be created and used. The challenge of the Intranet for librarians is the opportunity to continue to do what we've always done – take a leadership role in the management of information in the new age."[10]

[10] *Computers in Libraries*, June 1996, 16:6, p. 8.

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Appendix A

INTRANET

Source: Webserver Development Team
Approved by the UNO Library Council: October 30, 1996

In establishing a Library Intranet, the University Library moves toward its vision of a boundary-free organizational structure in which information and resources are freely shared between elements of the traditional departmental structure. The term "Library Intranet" describes a collection of web pages and related resources available only to the faculty and staff of the University Library. This distinguishes it from the Campus Intranet, in which resources are available to the entire campus community, and from the Internet website, which is available to any Internet user. This policy defines the structure of the Library Intranet and assigns responsibility for its content.

Structure

The Library Intranet will be structured initially in a manner reflective of the organization. Each of the four Library departments (Administrative Office, Bibliographic Access, Collections Management and Public Services) will maintain a home page linked to the Library Intranet main page. Departmental areas will be structured as deemed appropriate by the department chair. Organizational units, functional groups, individuals or functions might provide structure to a departmental area.

Links to the Library Intranet main page may also be maintained by organizational units that are not part of a single department such as standing committees, on-going work teams, project teams or taskforces as deemed appropriate by the Administrative Council.

Responsibility for Content

No links to the Library Intranet main page will be established without the approval of a departmental chair or the Administrative Council.

All pages existing as part of the Library Intranet will include the following information:

- the name "University Library, University of Nebraska at Omaha"
- name of the organizational unit publishing the page
- name and e-mail address of the individual(s) responsible for maintaining the page
- date of the last update for quality control

All pages existing as part of the Library Intranet will comply with all sections of The University of Nebraska at Omaha World Wide Web Homepage Development and Utilization Guide, and particularly with section 2.3 of Part II: The University of Nebraska at Omaha Principles and Guidelines (Draft Document in this or its final form, which states:

"Academic and administrative departments and personal page developers are responsible for their own homepages. This means that their respective homepages shall: 1) be consistent with University mission; 2) comply with ownership rights of intellectual works; 3) be developed and managed with a responsible use of resources; 4) protect copyrighted information and materials; 5) use licensed software; 6) not advocate a political or social issue; 7) not be used for personal business or advertising; 8) not cause computer or network loading that impairs other services; 9) be consistent with the UNO policies and local, state, and federal laws, and; 10) keep the information up to date. This includes links to other homepages or computers. In other words, a page may be considered in violation if it contains links to a page that violates this policy."

Responsibility for Style and Appearance

All pages which exist as part of the Library Intranet will conform to the stylistic and structural guidelines established by the WebServer Development Team.

Pending decisions on the organization and administration of the Library's webserver, the WebServer Development Team will assume both administrative and technical responsibility for the Library Intranet Main Page and will assist departments and other organizational units in mounting and appropriately linking their pages to the Intranet.